



**Online Testing**  
**Technology Readiness Analysis**  
**Phase II**  
**For**  
**Cherokee County School District**

# Overview of Cherokee County School District



Cherokee County School District is located in the northern part of the state with the District Office located in Gaffney, SC. As of November 2016, the district is comprised of 20 schools, serving approximately 9,000 students. Test scores for students in grades 3-8 in the district were below the state average in all areas in 2016 for SC Ready and SCPASS and leadership is working aggressively to take the appropriate measures to enhance the learning experience and increase student achievement rates in 2017.

## **Key Data Points**

- Dr. Quincie Moore has served as Superintendent for 5 years
- District Poverty Level is 69%
- Teacher Retention Rate is 92%
- Breakdown of schools:
  - Alma Elementary, 65 years old, last renovation 2015, grades 4K-5, 231 students
  - B D Lee Elementary, 61 years old, new school 2018, grades 3K-5, 350 students
  - Blacksburg Elementary, 30 years old, last renovation 2015, grades 3-5, 355 students
  - Blacksburg Primary School, 15 years old, last renovation 2015, grades 3K-2, 431 students
  - Blacksburg Middle School, 61 years old, last renovation 2017, grades 6-8, 382 students
  - Blacksburg High School, 42 years old, last renovation 2015, grades 9-12, 523 students
  - Cherokee Technology Center, 49 years old, new school 2018, grades 10-12, 537 students
  - Community Learning Center, 9 years old, last renovation 2008, grades 6-12, 70 students
  - Corinth Elementary School, 60 years old, last renovation 2016, grades 4K-5, 444 students
  - Draytonville Elementary School, 59 years old, last renovation 2016, grades 4K-5, 250 students
  - Ewing Middle School, 49 years old, last renovation 2017, grades 6-8, 385 students
  - Gaffney Middle School, 57 years old, last renovation 2015, grades 6-8, 547 students
  - Gaffney Senior High, 18 years old, last renovation 2016, grades 9-12, 1987 students
  - Goucher Elementary, 61 years old, last renovation 2015, grades 4K-5, 278 students
  - Granard Middle School, 61 years old, last renovation 2017, grades 6-8, 576 students
  - Grassy Pond Elementary, 19 years old, last renovation 2016, grades 4K-5, 532 students
  - Limestone/Central Elementary, 19 years old, last renovation 2015, grades 4K-5, 461 students
  - Luther Vaughn Elementary, 42 years old, last renovation 2015, grades 4K-5, 355 students
  - Mary Bramlett Elementary, 61 years old, last renovation 2017, grades 3K-5, 307 students
  - Northwest Elementary, 19 years old, last renovation 2016, grades 4K-5, 530 students

**Participating District Personnel**

Name of District Staff Member	Roles/Responsibilities
Todd Hughes	Director of IT
Joey Cole	Network Administrator
Chad Hudson	Coordinator of Testing

## Purpose of This Analysis

The purpose of this analysis is to provide an independent evaluation of the ability of Cherokee County School District to organize and conduct online testing for their students starting in the spring of 2017. Federal online testing guidelines will take effect in 2018 but South Carolina's legislature has implemented plans for all districts to begin formal online testing in March of 2017. This proactive technology analysis will benchmark a district and their schools in several key areas and provide a technology readiness score that will ultimately lead to a roadmap of detailed tasks and deliverables that are necessary to improve any of the deficient areas.

The four specific objectives of this analysis are:

1. Analyze the strengths and weaknesses of the school district and quantify their ability to carry out the online testing activities in 2017 and beyond while documenting any major gaps in "readiness."
2. Work with the district to identify recommendations to bridge the gap between where the district is and where they need to be in terms of technology readiness to carry out these activities.
3. Collaborate with the district to put in place a blueprint for completing any tasks (or procurements) necessary to achieve "technology readiness."
4. Identify opportunities for the district to collaborate with other state agencies and/or school districts to share fixed costs.

## Analysis Background

During the 2015 budget planning period, Superintendent Molly Spearman championed the General Assembly to consider the request of reserving a portion of the K-12 Technology Initiative funds for the purpose of providing technology technical assistance to rural and less affluent districts of need. After funds were allocated through the Proviso, the Superintendent's office called together a small Advisory Task Force to begin exploration of a plan of action to implement the initiative. The Task Force included South Carolina Department of Education (SCDE) staff, representation from rural school districts, legislative representation, and private sector.

### The Proviso states:

*"1.94. (SCDE: Technology Technical Assistance) Of the funds appropriated for the K-12 Technology Initiative, the department is authorized to withhold up to \$350,000 in order to provide technology technical assistance to school districts."*

The purpose and spirit of the Proviso is for the SCDE to provide technology-consulting services ("technology technical assistance") to school districts that would otherwise struggle in securing such services and resources. In particular, consulting services would initially focus on evaluating the state of technology, in participating districts, as it relates to readiness for standardized, online assessments beginning in 2017 and the capacities to offer quality computing based instruction, including Wi-Fi availability for support of instruction.

**Proposed District Participants:**

While there are a substantial number of rural-based districts in the South Carolina public school system, funds allocated for the first year's initiative were not adequate to offer high quality, and much needed, external, independent consulting services to all districts of need. Therefore, it was recommended that initial focus be placed on the plaintiff districts involved in the lawsuit between districts and the state (Abbeville vs. South Carolina.) and any other rural districts identified by the State Superintendent's office. There were initially at least 30 districts involved in the state suit and about 9 remained by the end of the suit. All of the original Abbeville Law Suit districts were given the opportunity to participate in the Online Testing Technology Readiness Analysis. In late 2016 the Legislature approved additional funding to provide this study to the remaining school districts in the state.

**Proposed Consulting Resources/Partners:**

The South Carolina Department of Education did not have adequate staffing to fully offer technology consulting services of this magnitude. Therefore, it was suggested that SCDE seek and secure external, independent contracted services to facilitate this initiative. The state interviewed several industry-consulting resources and opted to leverage a lead consultant who helped the state with the analysis and writing of the Educational Technology Plan for years 2014-2017. Robert Cardelli was contacted in late 2015 and the consultant team was finalized and officially began work the second week of November 2015.

**Initial Outcomes:**

As a result of the initiative, each participating district receives a personalized report detailing the consultants' findings and recommendations as to the district's technology readiness for state and other online assessments, 1:1 computing, and enhanced Internet connectivity (Wi-Fi) for the support of instruction in their schools. A blueprint outlining specific steps the district and their schools need to focus on is presented to the district's superintendent as part of the final report.

## Evolution of Online Testing Requirements

No Child Left Behind legislation required states to measure students' progress in reading and mathematics annually in grades 3-8 and at least once in grades 10-12 by 2005-2006. The *Every Student Succeeds Act* (ESSA) maintains the requirement that each state implement "a set of high quality student academic assessments in mathematics, reading or language arts, and science" (114th Congress, 2015, p. S.1177-24) among its provisions. Further, mathematics and reading or language arts assessments will be administered in each of grades 3-8, and at least once in grades 9-12.

Beginning in the 2014-2015 school year, learners faced a new testing challenge in that their assessments of learning will be via online testing of the Common Core standards. Assessments are being developed by organizations such as PARCC, DRC, ACT and SBAC. Tests may take learners from 8-10 hours to complete and must be integrated into the school's daily and weekly calendar of events to complete the necessary activities. (Doorey, 2014; Gewertz, 2013). Online testing has posed concerns about required technology, sufficient bandwidth, computerized test security, learners' technology skills, and new forms of test anxiety.

### States Must Become Familiar with Updated Legal Policies for Computerized Testing

Computerized testing raises new issues that require updating of test security laws and policies, as policies written for standardized testing administered via paper-and-pencil are no longer sufficient. ACT has a highly relevant report in this regard: [The End of Erasures: Updating Test Security Laws and Policies for Computerized Testing](#) by Michelle Croft (2014).

Croft (2014) outlined many concerns, noting that computerized testing does not eliminate cheating and test piracy. Such practices just take on different forms. Unique risks include such things as educators logging in to tests to view questions or change student responses, computer hacking, keystroke logging, printing, emailing, or storing test information in a computer outside the test delivery system. There is a greater risk of students accessing the Internet and other programs during testing. There is great concern about students using their own devices for testing and who has administrative privileges. Technology staff and teachers need to consider how testing workstations need to be positioned and secured so that students can't see what's on the monitors of others.

Croft (2014) recommended that states update their state statutes and regulations to reflect the shift to computer-administered assessments, concentrate efforts on controlling test access, and ensure that there is a single test security section within the updated manual that contains answers for any question that a test administrator has about test security. For example, policies should consider how student login information is secured. There should be rules on how tests are reactivated if disrupted. Additionally, these rules should emphasize having more than one proctor aid in the reactivation, and most importantly, proctors should maintain a log of all reactivations to provide documentation in the event of an investigation. Likewise, the technology should be secure and the testing window should be as short as possible to reduce the likelihood that items are compromised. Finally, states should implement steps to actively monitor test access issues through data reports to determine if there have been excessive logins or logins at times when testing should not occur (e.g., on the weekends), and have clear policies in place detailing how violations will be handled.

The test security section should also include an itemized list of what materials are secure (e.g., work folders, student authorization tickets with IDs and passwords, session rosters, scratch paper, reference sheets). "Information about who can access the test should be clearly articulated across the school and communicated to all proctors on the day of testing. In addition, there should be information on how to report test security concerns and possible violations, which can be applicable regardless of the testing format" (Croft, 2014, p. 4).

It is vital for states to adequately prepare districts and schools for the evolving testing requirements and to proactively ensure educators and students are familiar with any new policies regarding computerized test administration, including what they, test proctors, and students may and may not do. Having these policies and procedures in place is critical to the success of the testing process and the legal implications for violating any of these policies are potentially severe. Advance planning and communication is required to minimize the risks associated with testing. Any technological failures in the administration of the tests could spark an outcry to invalidate the results; especially considering that high-stakes test scores are factored into school grades, teacher salaries, and federal assistance to the state. The stakes are too high!



# South Carolina's Testing Requirements

## [ACCESS for ELLs®, \(WIDA\)](#)

English language proficiency assessment for limited English proficient students. Complies with the requirements of the No Child Left Behind Act of 2001, 20 USC 6301 et seq. (2002).

Purpose: English language proficiency

Grades: K through 12

Testing Schedule: February 6–March 24, 2017

## [ACT WorkKeys®, \(WorkKeys\)](#)

ACT WorkKeys is a job skills assessment. The South Carolina Code of Laws, section 59-18-325, requires that all eleventh grade students take ACT WorkKeys®.

Subjects: Reading, Applied Mathematics, and Locating Information.

Grade: 11th Grade

Testing Schedule: March 22-April 19, 2017

## [End-of-Course Assessment Program, \(EOCEP\)](#)

End of Course Examination Program (EOCEP) is a statewide assessment program of end of course tests for gateway courses to meet federal accountability requirements.

Subjects: Algebra 1, English 1, Biology 1, and US History and the Constitution

Grade: 11th Grade

Testing Schedule: Dec 1, 2016 - Jan 27, 2017, May 1 - last day of School, June 19 - July 21, 2017

## [South Carolina College and Career READY Assessments, \(SC READY\)](#)

Statewide assessments in English language arts (ELA) and mathematics that will meet all of the requirements of Acts 155 and 200, the Elementary and Secondary Education Act (ESEA).

Subjects: English Language Arts and Mathematics

Grades: 3 through 8

Testing Schedule: April 7 – June 5, 2017

## [South Carolina Palmetto Assessment of State Standards, \(SCPASS\)](#)

SCPASS test items measure student performance on the South Carolina Academic Standards. The SCPASS test items are aligned to the standards for each subject and grade level.

Subjects: Science and Social Studies

Grades: 4 through 8

Testing Schedule: The last thirty (30) days of school

## [The ACT®, \(ACT\)](#)

The ACT test scores provide information about progress toward college readiness and are widely used by colleges in making decisions about admission. This test is required by The South Carolina Code of Laws, section 59-18-325, which specifies The ACT® test must be administered to all eleventh grade students.

Subjects: English, Reading, Mathematics, and Science, and Writing test (essay).

Grade: 11th Grade

Testing Schedule: February 28-March 14, 2017



## Overview of Technology Readiness Analysis Team

A team of independent consultants has been hired by the State of South Carolina to conduct all aspects of this assessment. The objectivity that outside resources bring to the table has helped reduce the perception that “big brother” is searching for negative data points on a district’s leadership team. The use of third party resources has helped foster open and honest dialogue and allowed the district staff and consultants to collaborate in all aspects of the process. The team is comprised of the following individuals:

### ☐ **Rob Cardelli**

- Project Manager overseeing all facets of the analysis
- More than 20 years of education and government consulting expertise
- Personally worked with over 100 education customers including helping the Department of Education in South Carolina gather requirements and write the State’s Educational Technology Plan for years 2014-2017

### ☐ **Brenda Bryant**

- Former school teacher in Richland 2 school district
- Focusing much of her attention on the readiness of students and teachers along with professional development concerns

### ☐ **Bob Jones**

- Local I/T and Management Consultant with over 30 years of experience
- Focusing much of his efforts on the infrastructure, hardware, security and funding concerns
- Expert in data analytics and reporting

## Participating Districts

The school districts that the state has identified as potential candidates for these optional readiness analysis studies have been prioritized into the following three categories:

- ❑ **Wave 1-** Includes the nine school districts that were still involved with the Abbeville Lawsuit at the time of the verdict
- ❑ **Wave 2-** Complete list of all districts participating in the Abbeville Lawsuit at any point in time over the last 20 years
- ❑ **Wave 3-** Other districts categorized as impoverished
- ❑ **Wave 4-** Remaining districts currently participating in the study

### Wave 1

### Wave 2

### Wave 3

### Wave 4

<ul style="list-style-type: none"> <li>• Allendale</li> <li>• Dillon 3</li> <li>• Dillon 4</li> <li>• Florence 4</li> <li>• Hampton 2</li> <li>• Jasper</li> <li>• Lee</li> <li>• Marion</li> <li>• Orangeburg 3</li> </ul>	<ul style="list-style-type: none"> <li>• Abbeville</li> <li>• Bamberg 1</li> <li>• Bamberg 2</li> <li>• Barnwell 19</li> <li>• Barnwell 29</li> <li>• Barnwell 45</li> <li>• Berkeley</li> <li>• Chesterfield</li> <li>• Clarendon 1</li> <li>• Clarendon 2</li> <li>• Clarendon 3</li> <li>• Florence 1</li> <li>• Florence 2</li> </ul>	<ul style="list-style-type: none"> <li>• Florence 3</li> <li>• Florence 5</li> <li>• Hampton 1</li> <li>• Laurens 55</li> <li>• Laurens 56</li> <li>• Lexington 4</li> <li>• Marlboro</li> <li>• McCormick</li> <li>• Orangeburg 4</li> <li>• Orangeburg 5</li> <li>• Saluda</li> <li>• Williamsburg</li> </ul>	<ul style="list-style-type: none"> <li>• Calhoun</li> <li>• Colleton</li> <li>• Darlington</li> <li>• Edgefield</li> </ul>	<ul style="list-style-type: none"> <li>• Aiken</li> <li>• Anderson 1</li> <li>• Anderson 3</li> <li>• Beaufort</li> <li>• Charleston</li> <li>• Cherokee</li> <li>• Chester</li> <li>• Greenville</li> <li>• Greenwood 52</li> <li>• Horry</li> <li>• Lancaster</li> <li>• Lexington 1</li> <li>• Lexington 2</li> <li>• Lexington/Richland 5</li> </ul>	<ul style="list-style-type: none"> <li>• Newberry</li> <li>• Oconee</li> <li>• Pickens</li> <li>• Spartanburg 1</li> <li>• Spartanburg 2</li> <li>• Spartanburg 4</li> <li>• York 2</li> </ul>
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### Plaintiff Districts

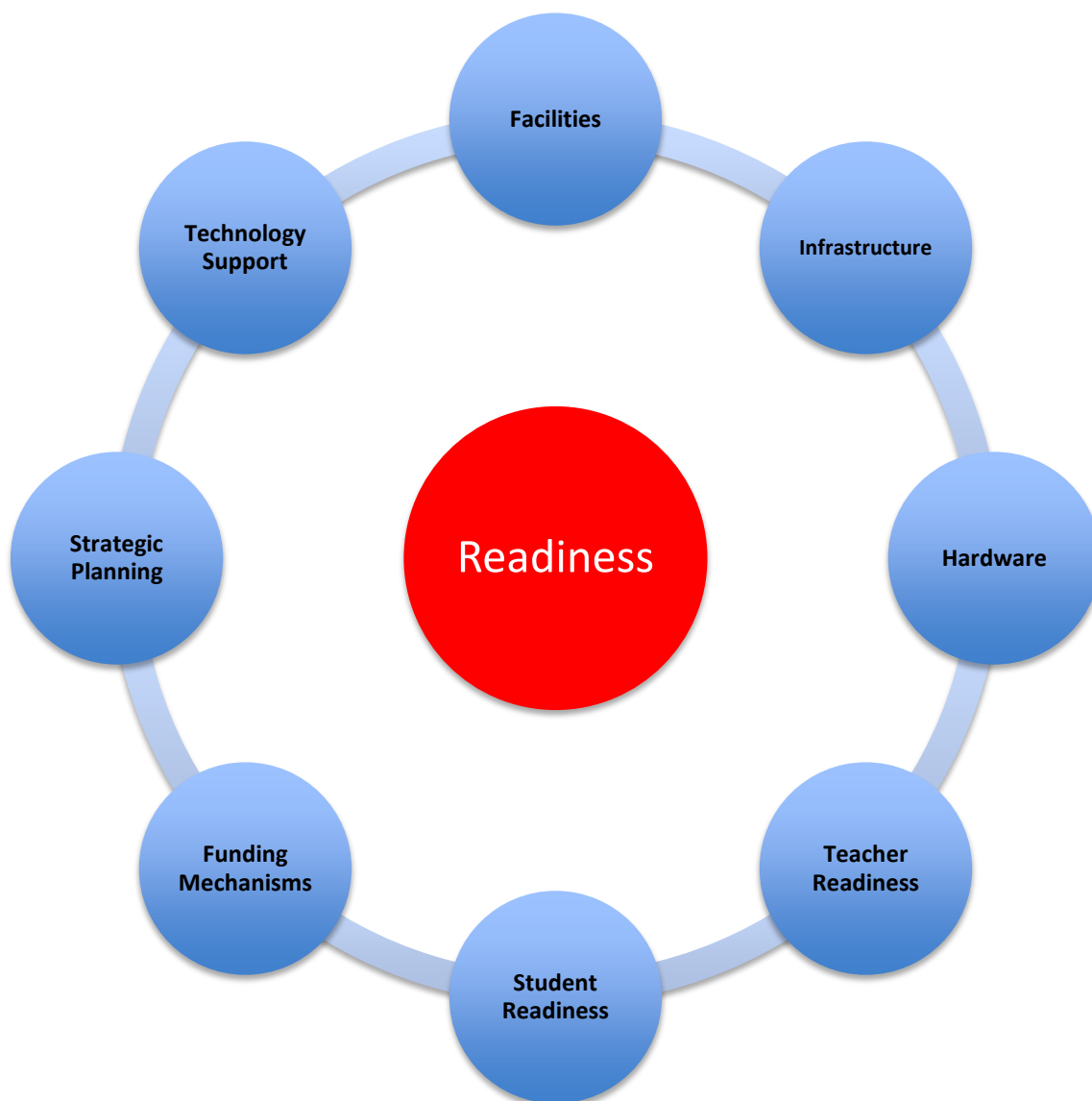
# Analysis Methodology

The consultants worked with several of the districts, early in this process, to design and ultimately refine a methodology that allows for rapid data gathering with multiple collaboration opportunities for district staff to review the findings and edit the documentation to ensure the report accurately reflects the current state of the district. The consultants realize how busy the district staff are and created a methodology that is non-invasive in nature and flexible to allow the participants to work around their “day jobs” to reduce the impact on their daily operations.



## Primary Areas of Focus

The technology analysis team identified several categories that are critical for a school district to achieve technical readiness for online testing. Within each category there are multiple variables that directly impact that category's degree of readiness. Accurately documenting these variables helps paint a picture of the overall level of readiness of the school district and also can be used to craft a blueprint for improving those deficient areas. The graphic shows the eight (8) categories currently being used to measure the degree of readiness. The following pages provide details surrounding the variables that are being analyzed during the analysis process.



# Categories and Variables Being Measured

**Note:** These are generic categories and questions being asked are not specific to any one district. Each bullet point receives a score that is averaged for the overall section.

## ☐ **Impact of Facilities**

- How does the availability or lack of space impact the district's level of readiness?
- How does the age of the schools impact cabling, wireless, and ability to connect to the Internet?
- Does poor air conditioning or ventilation in server rooms, network closets, or computer rooms present a risk to the availability of the computers for testing?
- Are there situations where rodents chew through cables and bring down the district computer network? How long is the network down and what is the frequency of these events?
- Are there leaky ceilings, poor flooring, mold, or other environmental conditions that could impact the testing facility?

## ☐ **Readiness of Infrastructure**

- How does the amount of available network bandwidth impact the testing strategy?
- Are there any risks to testing due to the "up time" of the district (or school's) network?
- How many simultaneous testing machines can a district handle during any block of time?
- Does the district need additional wireless access points to conduct testing activities?
- Do the age and type of routers or switches impact the performance of the network and the ability of students to test in a given timeframe?
- Does the current wiring/cabling of the network impact the overall system performance? Is there anything that needs to be improved to enhance the testing experience?
- Is there any evidence that the security of the district's networks or computers could impact online testing?

## ☐ **Readiness of Existing Hardware**

- How does the number of available computers directly impact the district's ability to test?
- Is there a need to upgrade the available memory (RAM) in the testing computers? How much memory is currently in the testing machines and what (if any) performance issues have been witnessed?
- Are there any concerns over the size or quality of the testing monitors?
- Is there evidence that the different types of equipment being used for online testing directly impact the staff's ability to support the technology? Are there multiple products in use overcomplicating the support strategy and overall skills of the district staff?
- Do the current operating systems of the testing computers limit the ability to test? Are there any upgrades being planned and when will these take place?
- Are there adequate backup testing machines and/or accessories to ensure the necessary number of devices on the day of testing?
- Are there any procurements currently being contemplated and will they need to be amended to reflect changes to the testing strategy?

## ❑ **Teacher Readiness**

- Are the teachers adequately prepared for 2017 online testing requirements?
- Do the teachers require professional development training to educate them on how to better leverage technology?
- Do the teachers require assistance creating and conducting computer literacy classes for their students?
- Does the district have funding to offer computer literacy?
- What is the turnover rate of the teachers? How does the turnover rate impact the district's testing strategy?
- How do the teachers interact with the district technology staff?
- Are teachers aware of testing policies and are they properly prepared to manage testing cycles?
- Do the teachers need assistance in preparing their students for computer literacy?
- Are there any other concerns related to a teacher's knowledge or ability to assist with online testing?

## ❑ **Student Readiness**

- How does the level of computer proficiency of the student's impact online testing? Are there any concerns that students are not properly prepared to take a test on a computer?
- Does the district offer kindergarten through second grade computer classes?
- Is there any proactive analysis to identify disadvantaged students in a classroom with little to no computer literacy? What, if anything, is the district doing to help these potentially at risk students?
- Does the district allow students to check out computers to take home?
- How does a district manage situations where two different teachers leverage technology differently? Is there any analysis into the student's technology proficiency between these two scenarios?
- Does the district offer practice tests to allow the students to get familiar with the testing process and what is expected of them?
- Are students aware of testing policies and the implications?
- Is there any evidence from previous online testing cycles that students need assistance in specific areas? Examples might include: typing skills, knowledge of scrolling or potentially how to properly use a mouse.

## ❑ **Technology Support**

- How many resources are available at the district level and what are their roles and responsibilities?
- What are the main skills of the staff? Are there any skills missing in the support model?
- What functions are outsourced?
- What kind of help desk system is in place and how many ticket items are open?
- How many job duties does the staff have to perform?
- Does the district staff have any assistance from within the school?
- What would the impact be on the school's ability to test if a key resource were to call in sick or resign during the testing window?
- Are there any concerns about the availability of technology staff to support the testing process?
- Are policies and testing procedures documented and disseminated to all staff?
- Are students and their families made aware of the testing policies and schedule?
- Does the technology support team regularly communicate their needs to the administration and/or school board? What is the relationship between these parties?

## ❑ **Funding Mechanisms**

- Does the district leverage all available e-Rate funds?
- How has the district utilized e-Rate funds in the recent past?
- Does the district have experienced grant writers?
- How have technology related grants been utilized in the recent past?
- Are there any funds from e-Rate or grants that have NOT been utilized but could be leveraged to help improve the overall readiness of the district for online testing?
- Who writes the e-Rate documentation and grants? Internal or external resources?
- Are there other sources of funds the technology staff has access to and for what are they used?
- How does the district determine how the funds will be utilized?
- Are there any situations where money earmarked for technology is denied and utilized for non-technical district needs?
- What is the role of the technology staff in setting budgets and preparing for online testing needs?
- Is there a formal mechanism for cross training multiple district staff in the rules, regulations and nuances of applying for e-Rate, grants or other funding sources?
- How are the district's funds allocated for student computer literacy being spent?

## ❑ **Strategic Planning**

- Does the district have an up to date district wide strategic plan?
- Does the district have an up to date district technology strategic plan?
- Are the district's strategic plan and the TECHNOLOGY strategic plan properly aligned?
- What is the level of involvement of the local school board?
- Who is involved in strategic planning?
  - *Superintendent?*
  - *Teachers/Faculty?*
  - *I/T staff?*
  - *Local Vendors?*
- How does the district proactively plan for new technology acquisitions?
- How do the schools leverage district I/T staff?
- How are students or teachers leveraged?
- How are local technology vendors utilized?
- What is the level of involvement with the local "consortium"?
- How does the technology staff procure hardware or services?
- Is there a risk of "single point of failure" with the district staff member?
- Does the district need specific training in proper strategic planning?
- What is the role of the finance officer and their level of knowledge around I/T funding?
- What is the level of knowledge of your local state representatives in regard to your needs and funding challenges?
- What assistance is required from the state?

## Overview of Readiness Rating Scale

To evaluate the readiness of a district in multiple areas the team created a rating scale to objectively measure how effectively (or ineffectively) a particular area rates compared to other districts. After each area has been given a score the analysis team compiles the statistics and averages them to derive a final readiness score for the district. To simplify the process the consultants used a scale of 1-5 that increases in increments of half a point. The following scale will be used to track future readiness decisions:

Rating	Description
<b>1</b>	The district is unable to prove they can successfully complete online testing in 2017.
<b>2</b>	The district could feasibly conduct testing in 2017 but there are multiple areas that need to be improved to make this happen and if they are not completed testing will more than likely be unsuccessful.
<b>3</b>	The district is able to meet the needs for online testing in 2017 but has several areas where they could improve and multiple risks exist that could significantly impact the overall health of the organization. If these issues are not addressed it's likely the district will deteriorate rapidly
<b>4</b>	The district is doing everything right within their power. There are some areas that are outside of their control that need to be addressed to help ensure the future stability of the district.
<b>5</b>	The district is prepared for 2017 and beyond. They do not have any measurable risks associated with Online Testing for 2017 or beyond. They can handle online testing for all grades and subjects.



## Summary of Findings for Cherokee County School District

<b>Overall Readiness Score</b>	<b>3.9</b>
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### Impact of Facilities

<b>Readiness Score</b>	<b>4.0</b>
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Area of Focus	Observations	Recommendations
<b>Availability of Testing Labs</b>	<ul style="list-style-type: none"> <li>A couple of schools in the District do not have sufficient labs to complete testing within the state testing window. Online testing will be done in classrooms using computer carts at these schools.</li> <li>District must take computer rooms from scheduled classes in order to successfully complete online testing.</li> </ul>	<ul style="list-style-type: none"> <li>Recommend using laptops for testing in classrooms, as planned, in addition to workstations in computer labs.</li> <li>Disruptions to scheduled classes in computer labs need to be carefully managed to minimized negative impact to students.</li> </ul>
<b>Age of Buildings and Impact on Cabling and Wireless Connectivity</b>	<ul style="list-style-type: none"> <li>The age of the buildings present a challenge for running the necessary cabling. District has worked to get upgraded cabling to most all areas of our schools.</li> <li>Several network closets are located in labs/classrooms</li> </ul>	<ul style="list-style-type: none"> <li>District has prudently upgraded the network cabling so no further recommendations are needed.</li> <li>Ensure that all network closets are properly secured to prevent unauthorized access that may cause disruptions to testing.</li> </ul>
<b>Environmental Concerns</b> (i.e. mold, air conditioning and ventilation concerns, excessive noise)	<ul style="list-style-type: none"> <li>No indication of recurring leaky ceilings or any mold.</li> <li>Poor ventilation in our network closets along with the lack of access control present a concern for testing.</li> </ul>	<ul style="list-style-type: none"> <li>Adequate HVAC should be a priority to ensure there are no issues with equipment overheating causing disruptions during testing.</li> </ul>
<b>Condition of desks and chairs where students will be testing</b>	<ul style="list-style-type: none"> <li>No major concerns with age and quality of desks and chairs in the computer labs.</li> <li>The desk and chairs are sized appropriately for students in each grade.</li> </ul>	<ul style="list-style-type: none"> <li>District should not overlook the significance that the desk and chairs have on the overall testing experience. Be sure furniture is age appropriate for the students being tested. No recommendations at this time.</li> </ul>
<b>Other Comments or Concerns</b>		

## Infrastructure

Readiness Score	4.1
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Area of Focus	Observations	Recommendations
<b>Available Bandwidth to the district</b>	<ul style="list-style-type: none"> <li>District has an incoming bandwidth of 900 mbps and has the maximum available bandwidth provided by the state.</li> <li>District must restrict streaming programs during testing to ensure available bandwidth is sufficient.</li> <li>Cherokee has completed the application for more bandwidth and is scheduled to go to 1.5 GB July 2017.</li> </ul>	<ul style="list-style-type: none"> <li>District should continue to collect technical data for DTO to substantiate the need for more bandwidth.</li> <li>Formal internet load testing should be conducted as the demands of educational content streaming will continue to increase.</li> </ul>
<b>Disaster Recovery Solution</b>	<ul style="list-style-type: none"> <li>All servers are currently backup locally. Critical servers are also backed up to the cloud.</li> <li>There is a risk the network could go down during testing but District has redundancy in place.</li> </ul>	<ul style="list-style-type: none"> <li>The consultants recommend Cherokee collaborate with their peers in other districts who also need remote disaster recovery solutions to obtain a discounted vendor contract.</li> </ul>
<b>Stability of Networks Within The Schools</b>	<ul style="list-style-type: none"> <li>Power outages from a district level are not a major problem. Lightning at several schools often causes power issues.</li> <li>A big concern with power is the lack of a generator at the district level since all internet traffic goes through the district office. A new generator has been approved and will be installed this summer.</li> <li>There has not been a formal network stability/load analysis completed for the district.</li> </ul>	<ul style="list-style-type: none"> <li>Formal network stability / load analysis should be conducted to ensure networks can adequately handle the demands of the district</li> <li>A generator should be purchased for the district office as all internet traffic goes through that office.</li> </ul>
<b>Available Bandwidth to the Schools</b>	<ul style="list-style-type: none"> <li>The district pays for extra bandwidth going to the schools. Elementary schools 250 mbps, middle 500 mbps, one high school is connected with 10g GB fiber, the smaller high school is 1 GB.</li> <li>So far the bandwidth has been sufficient, but elementary schools are yet to receive 1:1 devices. The bandwidth needs of these schools will grow once they receive devices, especially in the larger elementary schools</li> </ul>	<ul style="list-style-type: none"> <li>Network performance testing should be conducted to ensure the available bandwidth can adequately handle the demands of online testing and 1:1 devices.</li> </ul>

<b>Wireless Networks</b> <ul style="list-style-type: none"> <li>• Routers</li> <li>• Access Points</li> <li>• Bandwidth</li> <li>• Switches</li> </ul>	<ul style="list-style-type: none"> <li>• The district has just completed updating all switches and routers and has added access points to all classrooms.</li> <li>• Wireless coverage is now close to 100% of used spaces.</li> <li>• With recent upgrades there should not be any negative impact on wireless networks, only bandwidth concerns</li> </ul>	<ul style="list-style-type: none"> <li>• The district has done an excellent job upgrading and maintaining their infrastructure. No further recommendations are needed.</li> </ul>
<b>Security Issues / Plans</b>	<ul style="list-style-type: none"> <li>• The district uses group policy to lock down student machines during testing to prevent cheating. Restrictions are set at student computer level.</li> <li>• Cherokee has no evidence as of now that security could impact online testing.</li> </ul>	<ul style="list-style-type: none"> <li>• The district should continue to explore opportunities for security training. No further recommendations are needed in this area.</li> </ul>
<b>Other Comments or Concerns</b>		

## Hardware

Readiness Score	4.7
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Area of Focus	Observations	Recommendations
<b>Available Testing Devices</b>	<ul style="list-style-type: none"> <li>High schools and middle schools are 1:1 with Dell laptops so students test on these in classrooms.</li> <li>Due to online testing and the lack of lab space, District delivered laptop carts to grades 3-5 in February 2017. Most testing will now be done in classrooms.</li> <li>The district provides Dell touch screen laptops running Windows 10 to grades 3-12. The plan for K-2 is iPads.</li> </ul>	<ul style="list-style-type: none"> <li>Network performance testing should be conducted to ensure the available bandwidth can adequately handle the demands of online testing and the increased number of 1:1 devices. No other recommendations in this area.</li> </ul>
<b>Age and ability to upgrade computers</b>	<ul style="list-style-type: none"> <li>Lab computers in the elementary schools are 4-5 years old.</li> </ul>	<ul style="list-style-type: none"> <li>District should continue to refresh hardware to industry standards. No further recommendations are needed in this area.</li> </ul>
<b>Available RAM (Memory) in testing computers</b>	<ul style="list-style-type: none"> <li>Every machine has 4GB of RAM. No issues have been experienced with this amount of RAM.</li> </ul>	<ul style="list-style-type: none"> <li>Memory in devices should be sufficient for online testing. Consultants recommend upgrading to 8 GB when purchasing new computers to ensure there are no issues with video streaming in the future.</li> </ul>
<b>Adequate replacement hardware</b>	<ul style="list-style-type: none"> <li>The district keeps a small inventory of spare machines for testing and daily issues. So far the inventory level has been sufficient</li> </ul>	<ul style="list-style-type: none"> <li>District needs to also purchase and maintain a healthy supply batteries, keyboards, mice and headsets in addition to spare, backup machines.</li> </ul>
<b>Support and Replacement Strategy</b>	<ul style="list-style-type: none"> <li>The district has a 4 year refresh plan.</li> </ul>	<ul style="list-style-type: none"> <li>District should continue to follow their refresh plan which is in line with industry standards. No further recommendations are needed in this area.</li> </ul>
<b>Other Comments or Concerns</b>	<ul style="list-style-type: none"> <li>District has some concerns with the 11" laptop screen size presenting problems with certain tests.</li> <li>Major problem with technical specifications changing on several tests as the window gets to testing.</li> </ul>	<ul style="list-style-type: none"> <li>Cherokee, like many districts, has often been blindsided by changing testing specifications. Consultants feel that there should be more effort from the state to give districts adequate time to meet changing technical specifications.</li> </ul>

## Teacher Readiness

Readiness Score	3.7
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Area of Focus	Observations	Recommendations
<b>Technical Proficiency of Staff</b>	<ul style="list-style-type: none"> <li>Some teachers require assistance creating and conducting computer literacy classes for their students. The District's integrators assist these teachers.</li> <li>Teachers normally email integrators directly for assistance with technology planning or enter a helpdesk ticket if they have an issue.</li> </ul>	<ul style="list-style-type: none"> <li>Survey teachers and staff to identify opportunities for training and supporting teachers' ability to utilize technology in the classroom.</li> <li>Cherokee should collaborate with their local technical college to find ways to provide technology training for teachers.</li> </ul>
<b>Teacher Retention</b>	<ul style="list-style-type: none"> <li>Teacher retention rate is 92.4%. Primary reasons for teacher turnover are retirement and other opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>This excellent teacher retention rate reflects the quality of teacher support and appreciation in Cherokee. No recommendations at this time.</li> </ul>
<b>Teacher Utilization of Technology</b>	<ul style="list-style-type: none"> <li>There were some utilization issues when 1:1 first started in the district, but teachers have gotten more receptive over time.</li> <li>The district provides the same training for all teachers making sure all schools receive the same information.</li> <li>Some teachers are better with technology and go above and beyond and share their knowledge with their colleagues.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure professional development efforts are looking for new opportunities to utilize technology in the educational curriculum.</li> </ul>
<b>Teacher Technology Literacy Development</b>	<ul style="list-style-type: none"> <li>District Technology provides 5 mandatory sessions per year for teachers. Training goes on throughout the year as requested by teachers or principals.</li> <li>District has 4 Technology Integrators that are certified teachers whose role is to assist teachers with integrating technology in the classroom.</li> </ul>	<ul style="list-style-type: none"> <li>Cherokee should collaborate with their peers in other districts to find ways to share the limited professional development resources in each district.</li> </ul>
<b>Other Comments or Concerns</b>	<ul style="list-style-type: none"> <li>District has some concern with teachers administering online tests. Some teachers do not fully understand the training. These teachers often ask for assistance during their testing period.</li> <li>There are policies and procedures disseminated to all IT staff along with training for test administrators.</li> </ul>	<ul style="list-style-type: none"> <li>A formal training program on online testing policies and requirements needs to be undertaken as soon as possible.</li> </ul>

## Student Readiness

Readiness Score	3.9
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Area of Focus	Observations	Recommendations
<b>Availability of Computer/Typing Classes for K-2</b>	<ul style="list-style-type: none"> <li>Students are offered the opportunity to participate in computer lab instruction once or twice weekly.</li> <li>The District's ELA Curriculum Guide includes Written-Language Production Standards for Handwriting and Keyboarding, Grades K-8. Teachers are provided a checklist to document student mastery of the standards.</li> </ul>	<ul style="list-style-type: none"> <li>Consultants recommend starting keyboarding lessons prior to the 3<sup>rd</sup> grade. Formal computer literacy and keyboarding activities are necessary to ensure 3<sup>rd</sup> graders are prepared for on-line testing.</li> <li>NOTE: The Cherokee County School District is now using Learning.Com for all grades.</li> </ul>
<b>Level of Poverty/Home Exposure to Computers</b>	<ul style="list-style-type: none"> <li>The 2016 poverty index for district is 69.2%.</li> <li>Technology devices exist in all classrooms for student exposure and integration into daily instruction. This initiative begins at the 4K level to establish basic mastery of computer literacy skills.</li> <li>Our 1:1 initiative will be complete in the fall of 2017. This initiative includes the home use of devices for students in grades 3-12.</li> <li>District provides Wifi on district owned activity buses .</li> </ul>	<ul style="list-style-type: none"> <li>The increasing use of computers in the education process mandates all students have regular exposure to computers. A survey should be undertaken to better quantify students exposure to computers at home and their access to the internet.</li> </ul>
<b>English as a Second Language Concerns</b>	<ul style="list-style-type: none"> <li>The Cherokee County School District has identified 5.6% of its student population as ESOL. Qualifying students receive pull-out services, push-in services, sheltered English services, and/or monitoring services.</li> <li>After-school tutoring services are available at specific school sites. ESOL students also participate in all regular classroom technology instruction.</li> </ul>	<ul style="list-style-type: none"> <li>The consultants recommend the district staff continues to work closely with the schools to formally give the ESOL students an opportunity to take a practice test to ensure they are adequately prepared for testing activities.</li> <li>District is to be commended for providing after school tutoring services to ESOL students.</li> </ul>
<b>Availability of Sample Tests/Has District already attempted online assessment testing?</b>	<ul style="list-style-type: none"> <li>Cherokee County currently utilizes STAR Reading and Math, USA Test Prep, 3rd grade ITBS/CogAt, EOCEP and ACCESS for ESOL on-line testing.</li> </ul>	<ul style="list-style-type: none"> <li>Cherokee is above average in providing sample tests. No additional recommendations at this time.</li> </ul>

## Funding Mechanisms

Readiness Score	3.4
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Area of Focus	Observations	Recommendations
<b>e-Rate Funding</b>	<ul style="list-style-type: none"> <li>District is maximizing e-Rate funding. The district does not always leverage all available funds. In emergency or change of strategy situations, the district has to move more quickly and cannot wait for e-Rate funding.</li> <li>The district used e-Rate to upgrade the backbone in schools to 10Gig, upgraded switching and routing at the schools and provide access points to classrooms.</li> <li>The Director of Technology coordinates with Service Associates, their external e-Rate consultant, who writes the e-Rate documentation with input from Technology Director. Technology Director determines how funds are spent.</li> </ul>	<ul style="list-style-type: none"> <li>Cherokee should be commended for their efficient use of e-Rate funds received. The changes in what e-Rate will cover in the future necessitates a long term strategy for obtaining financial support for needs e-Rate may no longer cover.</li> </ul>
<b>Grant Writing</b>	<ul style="list-style-type: none"> <li>The district outsources grant writing. The outsourced grant writer lets the district know of grants available. The district has not had much success with securing grants.</li> <li>The district has not received technology grants. Some schools have been able to purchase technology through some of the grants they have won.</li> </ul>	<ul style="list-style-type: none"> <li>The consultants recommend collaborating with neighboring districts to share a resource to assist in this area. This is a common solution in many states</li> <li>It is important that any technology received through grants is approved by the technology staff to minimize compatibility issues.</li> </ul>
<b>Technology Budget</b>	<ul style="list-style-type: none"> <li>The yearly technology budget for the district is \$335k, set by the finance department. The technology budget has been the same for several years. The schools get their funds from finance department as well.</li> <li>The technology budget has not been adjusted since receiving K12 initiative money. Those monies have been used for infrastructure needs.</li> </ul>	<ul style="list-style-type: none"> <li>Through the efforts of their administration and Director of Technology, Cherokee has been very prudent in managing available funding. Continued prudent planning and management of available funds is imperative for the financial health of the district.</li> <li>District will need to find alternative funding to offset the reduction in K12 initiative money.</li> </ul>
<b>Other Comments or Concerns</b>	<ul style="list-style-type: none"> <li>The technology department receives some money from bonds which will be depleted soon.</li> <li>The technology department has access to the fees collected from insurance for 1:1 devices. These funds are used specifically for replacement/repair for 1:1 devices.</li> </ul>	<ul style="list-style-type: none"> <li>The district must identify alternative funding to replace bond money that will soon no longer be available.</li> </ul>

## Strategic Planning

Readiness Score	4.0
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Area of Focus	Observations	Recommendations
<b>Who is involved in strategic planning?</b>	<ul style="list-style-type: none"> <li>District involves the Superintendent, Teachers, Principals, Staff, Board and Community Members in the development of the District wide Strategic Plan.</li> <li>The technology staff communicates with the administrative staff on technology needs.</li> <li>The district has an up to date strategic plan. The Technology Strategic Plan is aligned with the District wide Strategic Plan.</li> </ul>	<ul style="list-style-type: none"> <li>The district's strategic planning emphasis is a critical success factor for the district and should be commended. No further recommendations are needed.</li> </ul>
<b>The role of technology is agreed upon by all parties</b>	<ul style="list-style-type: none"> <li>The technology department communicates needs directly to the Superintendent. The relationship between the technology department and Superintendent is very open.</li> <li>The local legislative representatives are supportive and seem to understand the needs of the district.</li> </ul>	<ul style="list-style-type: none"> <li>The increasing use of computers in the education process mandates a thoughtful strategy for meeting the student's and teacher's technology needs. No recommendations at this time.</li> </ul>
<b>Professional Development Strategies</b>	<ul style="list-style-type: none"> <li>Professional Development is considered as a priority in the district. Technology integrators/coaches are either a part or lead Professional Development at the district level.</li> <li>The technology staff works with teachers and other staff as their time allows. Teacher time is always tough to get.</li> </ul>	<ul style="list-style-type: none"> <li>Survey teachers and staff to see what kinds of professional development they would like to see.</li> <li>Cherokee should collaborate with their peers in other districts to find ways to share the limited professional development resources in each district.</li> </ul>
<b>Other Comments or Concerns</b>		



## Readiness of Technical Staff to Support Online Testing

Readiness Score	3.2
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Area of Focus	Observations	Recommendations
<b>Technical Support Staff</b>	<ul style="list-style-type: none"> <li>District has a staff of 13 employees, including the IT director, to support 20 schools and district office. Staff includes IT director, 1 Network/Systems engineer, 1 level 2 technician, and 4 level 1 technicians1 PowerSchool coordinator and 1 secretary/helpdesk. Technicians must cover 20 schools plus district office.</li> <li>District is working to become more proactive using system monitoring tools and training, but currently is more reactive.</li> </ul>	<ul style="list-style-type: none"> <li>As online testing grows, Cherokee may need to increase the technology staff. School coverage during testing will be difficult with only 5 technicians.</li> <li>The move towards 1:1 computing with the addition of many more devices is also adding increased workload to the district staff.</li> <li>The use of student interns could be a feasible solution to staffing shortages for basic support functions.</li> </ul>
<b>Technical skills and proficiency of support staff</b>	<ul style="list-style-type: none"> <li>The main skills of the staff as a whole are windows desktop and server administration. Network engineer has routing and switching skills.</li> <li>Missing skills are Apple knowledge, configuration and support.</li> <li>District does little outsourcing but does bring in firms to validate their methods and to check switching and routing configurations for optimum network performance.</li> <li>Staff lost has been because of salary or just burned out and going a different direction other than IT.</li> </ul>	<ul style="list-style-type: none"> <li>Formal details of roles and responsibilities are needed to help map out where additional skill sets might need to be inserted into the support model.</li> <li>Collaboration with nearby districts may provide some missing skill sets, such as Apple support, at a nominal cost.</li> <li>Retention should be a focus for district leadership. Losing any of these key IT resources could cause significant damage to the existing support model.</li> </ul>
<b>What is the role of I/T during testing?</b>	<ul style="list-style-type: none"> <li>Before the test begins, many IT resources have to be used to build caching servers and deploy clients or browsers. These often have to be updated each during the testing process.</li> <li>During testing IT's role is to be in schools assisting with testing. We do not have enough techs to have 1 per school but place techs responsible for schools within a close area.</li> <li>There have been instances when schools have had to stop testing and send students back to class to wait until techs could arrive and resolve a widespread problem.</li> <li>Principals are concerned for their students and want a tech onsite the entire time testing is going on. With more schools</li> </ul>	<ul style="list-style-type: none"> <li>Developing a support model for supporting on line testing should be a priority. Technical issues disrupting testing should be kept to a minimum.</li> <li>As much as district tests, IT needs one tech designated just for testing. It is very time consuming to make sure all software is loaded and properly updated.</li> </ul>

	than techs this is not possible.	
<b>Availability of staff to proactively engage with the teachers and administrative staff</b>	<ul style="list-style-type: none"> <li>District has a first line of defense employee at each school trained by technology. This employee also has other duties.</li> <li>District has a helpdesk and ticket system where school or district staff can enter a work order. The work order defaults to the first line of defense employee and if the issue cannot be resolved, it is escalated to technician level 1.</li> </ul>	<ul style="list-style-type: none"> <li>Director of Technology should consider a formal training program for points of contact in the schools to ensure basic required skills are developed.</li> <li>Training of school resources OR students could help reduce the help desk ticket volume and free up I/T staff to be more strategic.</li> </ul>
<b>Risk of Single Point of Failure. If a key resource leaves will testing become at risk?</b>	<ul style="list-style-type: none"> <li>The tech staff is cross-trained to an extent. Security concerns prevent total cross-training. If the IT director is out, the staff can cover.</li> <li>There would not be major concern if one key resource was out, but if two were out at the same time could be cause for concern.</li> </ul>	<ul style="list-style-type: none"> <li>Thorough documentation of procedures to facilitate cross training should be a priority. Alternate security policies should be considered to enable additional cross training.</li> <li>Collaboration with nearby districts may provide some additional resources that could be shared among several districts as backup to district resources.</li> </ul>
<b>Other Comments or Concerns</b>	<ul style="list-style-type: none"> <li>There are concerns about having enough staff to support testing, District cannot cover every school so issues are addressed as soon as someone can get onsite.</li> <li>As much as district tests, IT needs one tech designated just for testing. It is very time consuming to make sure all software is loaded and properly updated.</li> <li>Cherokee is developing students as additional support during peak demand times such as testing at Gaffney High and Blacksburg High.</li> </ul>	<ul style="list-style-type: none"> <li>Given the district's limited technology staff it is imperative that well trained contacts are at all schools to deal with on line testing issues.</li> </ul>

## Additional Consultant Observations

Highlighted below are the most frequently cited strengths of the school district, which can be used as a foundation for creating a roadmap to address any areas of concern. The items in the table are rank-ordered according to the frequency with which they were mentioned in the interviews. Multiple points of engagement took place with a minimum of two analysis team members involved with every district.

Rank	Strengths	Common Themes
1	Strategic Planning	Through collaboration and communication among all areas, Cherokee County School District has been able to overcome many of the other challenges they face.
2	Attitude / Enthusiasm	Extremely eager to make testing a success. Cooperative and positive attitude of management and staff. Excitement and positive attitude toward this project.
3	Work well together	Sense of collegiality - we work well together. Partnerships among schools, other districts and/or vendors.
4	Dedication	Level of commitment. Very dedicated people, people who are willing to get the job done and get it done well. Hard workers who are willing to do whatever it takes to get the job done.

## Commonly Cited Concerns

Listed below are the most frequently cited concerns about testing that were documented over the course of the analysis process.

Rank	Concern	Sample Answers
1	Budget	Concerns that the funds that will be necessary to procure additional infrastructure, hardware and/or professional development will be insufficient.
2	Disaster Recovery	Limited funds available for proper disaster recovery.
3	Staffing Levels and Workload	Inadequate staff to complete the workload to prepare for testing. The focus on assisting teachers and their classroom technology consumes the majority of the staff's time leaving little availability for additional tasks.
4	Lack of Professional Development	New or upgraded technology will require significant training. There are limited funds available for professional development and few resources available to conduct the training.

## District's Inventory of Readiness Needs

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Facilities	Space/Testing Rooms	Testing windows are tight but adding 1:1 is helping						
	Air Conditioning Unit	Need every wiring closet to be climate controlled and secured	Maintenance					
	Desks							
	Chairs							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Infrastructure	Bandwidth	Completed bandwidth study and sent results to DTO	Spirit	1.5Gbps	0	52.00/mnth	Technology Budget	8.1.17
	Routers							
	Switches							
	Access Points							
	Installation/Testing							
	Disaster Recovery	Offsite cloud all servers	Barracuda	1	\$15,000	\$1500/year		
	Other	Generator at District Office		1	\$25,000	0		8.1.17

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Hardware	Laptops	Teacher Assistants and office staff	Dell	185	\$116,550.00	0	K-12 Initiative	8.1.17
	Desktops	Refresh for K-5 labs	Dell	330	198,000	0	K-12 Initiative	9.1.17
	Memory							
	Operating System Upgrade							
	Monitors							
	Computer Carts (Cart Only)							
	Extra Batteries	Student and staff batteries	Dell	350	\$15,750	0	Technology fees	
	Installation/Testing							
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
Teacher Readiness	Type of training needed by grade and by topic	Survey for teacher PD						
	Teacher's Knowledge of Online Testing Requirements including security	Survey teachers for testing needs						
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
<b>Student Readiness</b>	Computer Literacy Curriculum	Use Learning.com						
	Computers needed for training	Students would use district provided devices						
	Practice Tests	Students would use district provided devices						
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
<b>Funding Mechanisms</b>	Assistance/Training for Writing Grants	Currently outsourced						
	Assistance/Training to manage e-Rate	Currently outsourced	Service Associates		\$15,000/year on average			
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
<b>Strategic Planning</b>	Consulting Assistance to educate staff in the strategic planning areas							
	Formal Training of Staff	Survey of needs						
	Other							

Category	Specific Need	Detail Specific Need (As required)	Vendor	Quantity	Estimated Cost (One Time)	Estimated Recurring Cost	Potential Funding Source	Date Needed
<b>Technical Support</b>	Consulting Assistance to help in specific areas	Setup of Apple devices and network configuration	Apple	11	\$4,500	0	Technology Budget	9.1.17
	Additional resources							
	Other							

# Strategic Roadmap

This section will provide an overview of the specific action items the district should focus on to improve the readiness of each area discussed in this report. The Roadmap is broken down into measurable tasks and deliverables to

## 1-Month Plan

- Using laptops for testing
- Secure network closets
- Collect data to send to DTO

## 3-Month Plan

- Connect with other districts on disaster recovery
- Survey teachers on PD needs

## 6-Month Plan

- Generator for DO
- Test internet loads once all devices are issued
- Work with local colleges on training opportunities

## 12-Month Plan

- Adequate HVAC
- Formal testing training before spring 2018 testing
- Search for grants and other technology funding opportunities

## 18-Month Plan

- Continue to monitor bandwidth between schools and to internet
- Cross train staff and have Apple expert on team



# APPENDIX

## Pictures of District



**Northwest Elementary Lab**



**Gaffney High Closet**



**Luther Vaughan Elementary**